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| EXAMINER | |
|---|---|
| BROOKMAN, STEPHEN A | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/586,599 | TENEZE ET AL. | |
| | Examiner | Art Unit | |
| | Stephen Brookman | 3644 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *20 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *16-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-26 and 28-30* is/are rejected.

7)☒ Claim(s) *19 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/20/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the means for orienting the nozzles and the supply switching systems (page 5) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the exhaust nozzles of the motors (all claims) and the supply of combustion gas to the third and fourth nozzles from the lift and displacement motor and the attitude motor (Claim 30) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

1. The abstract of the disclosure is objected to because it uses the implicit language "the invention relates to." Further, it uses the legal phraseology "means" and "said" in lines 3 and 6. Correction is required. See MPEP § 608.01(b).

2.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

**Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The disclosure is objected to because of the following informalities: the specification is not in accordance with 37 CFR 1.77(b) as outlined above and is instead in one continuous section.

Appropriate correction is required.

***Claim Objections***

4. Claim 19 is objected to because of the following informalities: in line 3, the word "ID" appears to be in error. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 16, 17, 19, 24-26, and 28-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to Claim 16, the word "it" in line 3 renders the claim unclear, as it is not clear what "it" is referring to. For the purposes of examination, the examiner will assume "it" is the flying object of line 1. Further, "the latter" in lines 7 and 17

renders the claim indefinite, as several possibilities exist within the preceding language that could be construed as "the latter." For the purposes of examination, the examiner will interpret "the latter" as "the elongate body." Further, Claim 16 refers to "lines of action." These are not defined within the specification and it is not clear what structure this attempts to claim.

Additionally, Claim 16 recites the limitation "the rear of said elongate body" in line 5. There is insufficient antecedent basis for this limitation in the claim.

With regard to Claim 17, "the latter" in line 5 renders the claim indefinite.

Claim 19 recites the limitation "the roll orientation of said flying object" in line 2. There is insufficient antecedent basis for this limitation in the claim.

With regard to Claim 24, it is unclear how the target is detected "for said picture taking means" in line 5. Further, the word "it" in lines 2 and 3 renders the claim indefinite, as it is not entirely clear what "it" represents.

Further, Claims 24-26 are unclear in that it is not clear what is being claimed by "means of propulsion" and "means of guidance." The means of propulsion appears to be the motor and nozzle (11,13), but the means of guidance is also mentioned, rendering both the means of propulsion and means of guidance

unclear as to exactly what structure is being claimed to account for these means. It is further not clear whether the means of propulsion are the motors of claim 1 or a new means of propulsion in addition to that specified in claim 1. It seems as though the applicant is using two names for the same feature. Further, regarding Claim 26, it is not clear how the means of propulsion and means of guidance *consist* of an additional motor without any additional structure. The word *consist* limits the means to exclusively including the motor and no further structure.

With regard to Claim 28, it is unclear how a means of propulsion and means of guidance are "formed by" said lift and displacement motor and by said attitude motor. This is unclear both in how "formed by" is confusing, and in that claim 24 seems to claim a separate means of propulsion and means of guidance and claim 28 seems to force these to be part of existing structure. Further, "the latter" in line 7 renders the claim indefinite, as several possibilities exist within the preceding language that could be construed as "the latter." Further, the third and fourth nozzles are unclear, as it appears these are the first and second nozzles.

With regard to Claim 29, it is unclear how the first and second nozzles form the third and fourth nozzles. If the first and second nozzles are moved to point to the front of the body, they no longer meet the limitations of Claim 16, rendering the claim indefinite.

With regard to Claim 30, it is unclear how the third and fourth nozzles can be supplied with combustion gas from both motors. This is further unclear in that it is not clear what constitutes the third and fourth nozzles.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al (U.S. Patent 4,913,379).

With regard to Claim 16, Kubota teaches a flying object capable of observing the ground, comprising an elongate body (Figure 1B), wherein it comprises:

- a lift and displacement motor (6), of the type with combustible propelling charge (i.e. booster propellant 9, Column 3, lines 15-36), associated with first exhaust nozzles (20) directed towards the rear of said elongate body and distributed laterally about the latter (i.e. the nozzles are distributed laterally as seen in Figure 1B), producing lateral maneuvering forces whose lines of action pass through the center of gravity (CG) of said flying object (i.e. lines of force pass through the CG), said forces being able to ensure the lift and the displacements of said flying object in an observation position for which said object is at least approximately vertical with the rear end of said flying object directed downwards (i.e. the missile can fly upwards in a vertical position)

- an attitude motor (8), of the type with combustible propelling charge (i.e. sustainer propellant 10), associated with second exhaust nozzles (7), directed towards the rear of said elongate body and distributed laterally around the latter (i.e. the nozzles are distributed laterally as seen in Figure

1B), producing lateral maneuvering forces able to maintain said flying object in said at least approximately vertical observation position

- said lift and displacement motor (6) and said attitude motor (8) are disposed on either side of said center of gravity (CG) of the flying object (as seen in Figure 1B) and in that, during the combustion of the respective propelling charges of these latter two motors, the position of said center of gravity remains at least approximately fixed (i.e. the center of gravity of the vehicle does not change very much as the vehicle operates).

Kubota does not expressly disclose picture taking means disposed on the vehicle. However, the examiner takes official notice that cameras are well-known and common throughout unmanned aerial vehicles and missiles, and it is commonly known that these cameras are used to receive images from the ground below. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a picture taking means (i.e. camera) disposed at the rear of said elongate body and able to observe said ground when said flying object is in said at least approximately vertical observation position, for the commonly known purpose of recording the activities on the ground below or monitoring vehicle activities.

11. Claims 16-19 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Damblanc (U.S. Patent 3,112,669).

With regard to Claim 16, Damblanc teaches a flying object capable of observing the ground, comprising an elongate body (structure 1, which is elongated along the length of the body from the bottom to the top of Figure 1), wherein it comprises:

- a lift and displacement motor (2), of the type with combustible propelling charge (i.e. solid rocket, column 2, line 13), associated with first exhaust nozzles (i.e. the rocket has a nozzle 13 and is next to/associated with other nozzles 13) directed towards the rear (i.e. bottom) of said elongate body and distributed laterally about the latter (i.e. the nozzles are distributed laterally as seen in Figure 1), producing lateral maneuvering forces whose lines of action pass through the center of gravity (CG) of said flying object (i.e. lines of force pass through the CG), said forces being able to ensure the lift and the displacements of said flying object in an observation position for which said object is at least approximately vertical with the rear end of said flying object directed downwards (i.e. the object hovers above the ground in the orientation seen in Figure 1)

- an attitude motor (i.e. any other of the motors 2 not considered lift and displacement motors per above), of the type with combustible propelling charge (i.e. solid rocket, column 2, line 13), associated with second exhaust nozzles (i.e. any of the other nozzles 13 not considered part of the lift and displacement nozzles above), directed towards the rear of said elongate body and distributed laterally around the latter (i.e. the nozzles

are distributed laterally as seen in Figure 1), producing lateral maneuvering forces able to maintain said flying object in said at least approximately vertical observation position

- said lift and displacement motor (2) and said attitude motor (any of the motors 2 not considered lift and displacement motors) are disposed on either side of said center of gravity (CG) of the flying object (i.e. the motors 2 are distributed equally about the center of gravity of the object as seen in Figure 1) and in that, during the combustion of the respective propelling charges of these latter two motors, the position of said center of gravity remains at least approximately fixed (i.e. the center of gravity of the vehicle does not change very much as the vehicle operates).

Damblanc does not expressly disclose picture taking means disposed on the vehicle. However, the examiner takes official notice that cameras are well-known and common throughout unmanned aerial vehicles, and it is commonly known that these cameras are used to receive images from the ground below. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a picture taking means (i.e. camera) disposed at the rear (i.e. bottom) of said elongate body and able to observe said ground when said flying object is in said at least approximately vertical observation position, for the commonly known purpose of recording the activities on the ground below or monitoring vehicle activities.

With regard to Claim 17, it would have been obvious to one having ordinary skill in the art at the time of the invention to design the motors such that the lift and displacement motor exhibits a larger mass than the attitude motor and is close to the center of gravity of the flying object than the attitude motor because this would have been an obvious design choice for stability of the object, as the lift is desirable to act through the center of gravity more so than attitude control.

With regard to Claim 18, the attitude motor of Damblanc is disposed at least partially at the rear/bottom of the elongate body, while the lift and displacement motor is disposed at least partially just in front/top of the center of gravity of the flying object.

With regard to Claim 19, the roll orientation of the flying object of Damblanc is at least partially controlled by the lift and displacement motor.

12. Claims 16 -19 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Girardeau et al (U.S. Patent 5,405,103) in view of Maykut (U.S. Statutory Invention Registration H236).

With regard to Claim 16, Girardeau et al teach a flying object capable of observing the ground, comprising an elongate body (i.e. elongate structure 3) wherein it comprises:

- a lift and displacement motor (i.e. the missile inherently has a main propulsion system functioning as a lift and displacement motor)

- an attitude motor (i.e. gas generator 8), of the type with combustible propelling charge (i.e. solid propellant, column 4, line 51), associated with second exhaust nozzles (7), directed towards the rear of said elongate body and distributed laterally around the latter (i.e. as seen in Figure 1), producing lateral maneuvering forces able to maintain said flying object in said at least approximately vertical observation position (i.e. the gas jet can alter the trajectory of the missile thereby making the motor and nozzles able to maintain the object in an approximately vertical observation position)

- said lift and displacement motor and said attitude motor are disposed on either side of said center of gravity (G) of the flying object (i.e. the gas generator 8 is seen in Figure 1 on the opposite side of center of gravity G from the rear of the missile, where the lift and displacement motor inherently resides) and in that, during the combustion of the respective propelling charges of these latter two motors, the position of said center of gravity remains at least approximately fixed (i.e. the center of gravity of the vehicle does not change very much/stays *approximately* fixed as the vehicle operates).

Girardeau et al. do not expressly disclose the lift and displacement motor being associated with first exhaust nozzles as claimed. However, Maykut teaches side-exhausting nozzles to be arranged symmetrically about the missile axis for the purpose of having the missile base area free for guidance and control

functions (Column 1, line 14-15). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to alternatively use the lift and displacement motor and nozzle arrangement as taught by Maykut, such that the first exhaust nozzles are directed towards the rear of the elongate body and distributed laterally as taught by Maykut, inherently producing lateral maneuvering forces whose lines of action pass through the center of gravity of the flying object/missile, said forces being able to ensure the lift and the displacement of the flying object in an observation position for which the object is at least approximately vertical with the rear end of the flying object directed downwards.

Further, Girardeau et al do not expressly disclose picture taking means disposed on the vehicle. However, the examiner takes official notice that cameras are well-known and common throughout unmanned aerial vehicles, and it is commonly known that these cameras are used to receive images from the ground below. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a picture taking means (i.e. camera) disposed at the rear (i.e. in the vacant space provided by the use of the nozzles of Maykut above) of said elongate body and able to observe said ground when said flying object is in said at least approximately vertical observation position, for the commonly known purpose of recording the activities on the ground below or monitoring vehicle activities.

With regard to Claim 17, neither Girardeau nor Maykut expressly disclose the lift and displacement motor exhibiting a larger mass than the attitude motor and being closer to the center of gravity of the flying object than the attitude motor. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to have a larger displacement motor, as the displacement motor would require the most power for resisting gravity, and it would have been obvious to one having ordinary skill in the art to have positioned the motors with respect to the center of gravity based on design choice and stability considerations necessary in constructing the vehicle, based on design parameters.

With regard to Claim 18, neither Girardeau nor Maykut expressly discloses the attitude motor being disposed at the rear of the elongate body while the lift and displacement motor is disposed just in front of the center of gravity of the flying object. However, it would have been obvious to one having ordinary skill in the art at the time of the invention to feature this orientation and arrangement of the motors as a result of necessary design parameters and design choice based on stability requirements for the flying vehicle.

With regard to Claim 19, the roll orientation of the flying object of Girardeau in view of Maykut is at least partially controlled by the lift and displacement motor.

13. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Girardeau et al (U.S. Patent 5,405,103) in view of Maykut (U.S. Statutory Invention Registration H236) and Hubricht et al (U.S. Patent 5,181,673).

With regard to Claim 20, neither Girardeau nor Maykut expressly discloses the flying object being launched by a launch and control post comprising a propulsion or ejection system which is specific thereto and is not carried by the flying object. However, Hubricht et al. teach a missile system/flying object in which the missile is launched by a launch and control post (3) comprising an ejection system (i.e. launcher 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide such a launch and control post comprising an ejection system which is specific thereto and which is not carried by the flying object, as taught by Hubricht et al, for the purpose of mobile launching capabilities, as taught by Hubricht et al.

With regard to Claims 21-22, the invention of Girardeau in view of Maykut and Hubricht is characterized in that it comprises means of linking with the launch and control post (i.e. glass fiber 7), which is an optical fiber for communications between the launcher and the flying vehicle.

With regard to Claim 23, Hubricht teaches an additional picture taking means (i.e. camera 60) disposed at the front of the elongate body. It would have been obvious to one having ordinary skill in the art at the time of the invention to

further include the additional camera as taught by Hubricht for enhanced visibility of what lies ahead of the flying vehicle.

With regard to Claim 24, the invention of Girardeau in view of Maykut teaches means of propulsion and means of guidance (motors) capable of allowing the object to attack via a rear part of the elongate body a target detected by the picture taking means at the rear of the elongate body of Girardeau in view of Maykut, but neither Girardeau nor Maykut expressly disclose a warhead. However, Hubricht teaches the flying object wherein it carries a warhead charge (62) for the purpose of being a piece of weaponry. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to further include a warhead charge in the invention of Girardeau in view of Maykut for the purpose of providing a piece of weaponry for enemy destruction, as taught by Hubricht.

***Allowable Subject Matter***

14. Claim 27 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Morris et al (U.S. Patent 5,456,425) teach a multiple nozzle control system. Lightbody et al (U.S. Patent 2,898,856) and Chilowsky (U.S. Patent 3,233,548) teach missiles with multiple nozzles. Deans et al (U.S. Patent 4,562,980) teach a rocket vehicle with attitude control.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Brookman whose telephone number is (571) 270-5513. The examiner can normally be reached on Monday through Thursday 10:00 AM EST to 4:00 PM EST, away alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571) 272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. B./
Examiner, Art Unit 3644

/Michael R Mansen/
Supervisory Patent Examiner, Art Unit 3644